CAMAG®


# Features and Specifications – *visionCATS* HPTLC Software Version 4.2

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| General features | ▪ Server/client architecture: full software installation on a single PC (server&client) or separated server installation with multiple client PCs and analytical data exchange capabilities<br>▪ User friendly design, modern interface<br>▪ Sample-oriented file management: File explorer search by sample ID, substance ID, keyword etc.<br>▪ Method Library: includes validated CAMAG methods, ready to use and continuously updated via internet<br>▪ Powerful help tools: online & offline help and instruments instruction manuals<br>▪ User management: Create user accounts/groups, set access rights and manage password policies<br>▪ Backup tool: Perform scheduled automatic or manual backups with restore functionality |
| Basic functions | ▪ Create and store TLC/HPTLC method and analysis files with multiple steps (application/development/derivatization/detection)<br>▪ Clean plate subtraction<br>▪ Customizable TLC/HPTLC reports<br>▪ Long-term sample/plate monitoring (capturing a series of images over a defined time period/interval between 1-60 minutes)<br>▪ Export data: Images, profiles, peak data, logs and reports (only with installed "21 CFR Part 11" option)<br>▪ Diagnostics for software and instruments, report with electronic signature support (only with installed "21 CFR Part 11" option) |
| Tracks (samples) comparison | Available in the *visionCATS* **Visualizer Qualitative** package, where it is possible to put tracks (samples) from the same plate or from different plates (images) side by side to compare the R values, color profiles and the color intensity of substances. |
| High Dynamic Range Image (HDRI) | Available in the *visionCATS* **Visualizer Qualitative** package, where the HDR Image is achieved by capturing several photos with different exposure levels for the same plate under 366 nm illumination and then merging them into a single HDR image. In this HDR image it is possible to simultaneously detect the very bright and the very faint fractions that are separated on the plate. |
| Quantitative evaluation | Available in the *visionCATS* **Visualizer Enhanced Evaluation** package or in the *visionCATS* **Scanner Ultimate** package on where it is possible to integrate the peaks of the scans generated by the TLC Scanner 4 (whole range from 190 to 900 nm) and the peaks of the profiles which are generated from a plate image (only UV 254 nm, UV 366 nm and white light) taken by the TLC Visualizer and subsequently perform single or multilevel calibration with linear or nonlinear regression using internal or external standards. |
| Multi wavelength scanning | Available in the *visionCATS* **Scanner Ultimate** package, where it is possible to scan the same plate at up to 30 different wavelengths and store the results in one analysis file then automatically evaluate each component at its maximum absorbance. |
| Dual wavelength scanning | Available in the *visionCATS* **Scanner Ultimate** package, where it is possible to perform background correction by scanning all tracks with two wavelengths, "measuring and reference wavelength", then subtract the two scans from each other. |

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| Spectrum scanning | Available in the *visionCATS* **Scanner Ultimate** package, where it is possible to scan any band or spot over a wavelength range between 190 and 900 nm. |
| Spectra comparison | Available in the *visionCATS* **Ultimate** package, where it is possible to overlay two or more spectra from the same plate or from different plates to compare how identical they are and respectively to check if they are representing the same substance or different substances. |
| Spectrum Library | Available by adding the *visionCATS* **Spectrum Library** option, to compare UV spectra (TLC Scanner 4) with curated libraries (Forensics, Phytochemicals, Pharmaceuticals). Spectra import from winCATS is supported. |
| 21 CFR Part 11 | Available by adding the *visionCATS* **21 CFR Part 11** option, where it is possible to control data security (method/analysis deletion policy, set method/analysis to read only, force to enter a reason for each change in the methods/analysis, E-signature) and where each method, analysis and comparison file has a log to record every change or modification in this file. |
| AI Tools | Available by adding the *visionCATS* **AI Tools** option in addition to the "Visualizer Ultimate" Package. Peaks and Classification mode in Comparison's profiles. The Peak functionality enables the selection and evaluation of known or unknown substances through peak analysis, including estimation of acceptable variability ranges.<br>The Classification feature offers tools for data preprocessing, dimensionality reduction, and both supervised and unsupervised classification.<br>Together, these represent the first AI-driven capabilities in *visionCATS*, with further intelligent tools and features planned for future releases. |
| Evaluation Assistant | The evaluation assistant in the Evaluation tab guides the user through the steps necessary to calculate the calibration curve and obtain the results. It indicates the progress of each evaluation step and helps to identify the actions needed to complete the evaluation process. |
| Database type | Microsoft® SQL Server® 2022 Express 64-bit |
| Compatible instruments | Full control of Linomat 5, ATS 4, ADC 2, ADC 3, AMD 2, TLC Visualizer 2, TLC Visualizer 3, TLC Scanner 4 (w/o mercury lamp support), HPTLC PRO Modules (APPLICATION, DERIVATIZATION, DEVELOPMENT, and PLATE STORAGE) |
| Recommended system requirements | CPU: 8$^{th}$ gen (coffee lake) Intel Core i5 (i5-8xxx) or equivalent<br>RAM: 8 GB<br>Data storage: 1 TB (frequent user)<br>GPU: DirectX 11 (or above) compatible graphic card (Nvidia GeForce GTX 1660, RTX 2060, AMD Radeon RX 5600-XT or equivalent)<br>OS: Windows 11 Pro or Enterprise 64-bit (for server only installation Windows Server 2022 Standard with Desktop Experience)<br>Gigabit Ethernet or more<br>True color 32-bit, Full HD (or higher) monitor resolution with Windows Aero theme enabled |